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(71) Applicant (for all designated States except US): **UNIVERSITY OF UTAH RESEARCH FOUNDATION** [US/US];
615 Arapeen Drive, Suite 310, Salt Lake City, UT 84108 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BLANCHARD, Danny** [US/US]; 194 West 1450 North, Bountiful, UT 84010 (US). **LIGRANI, Phil** [US/US]; 3051 East Dimple Dell Circle, Sandy, UT 84092 (US). **GALE, Bruce** [US/US]; 4909 Brown Villa Cove, Taylorsville, UT 84123 (US).

(74) Agents: **HOBSON, GARRON, M.** et al.; Thorpe North & Western LLP, P.O. Box 1219, Sandy, UT 84091-1219 (US).

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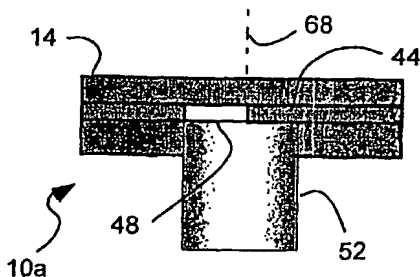
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WO 2005/024230 A3 (54) Title: ROTARY CENTRIFUGAL AND VISCOUS PUMPS



(57) Abstract: A pump device (10a, 10b, 10c) includes means for both transferring rotational momentum to the fluid by viscous forces, and imparting centrifugal forces to the fluid. The pump (10a, 10b) can include a wiper (44) extending partially across at least one rotatable disc surface (48, 48b, 48c) of at least one rotatable disc (52, 52b, 52c). The pump (10c) can include a rotatable shaft (150) with a hollow cavity (154) extending from one end to at least one slot (158) extending radially from the hollow cavity.